

IN THE CLAIMS

Please amend claim 1 as follows:

Sys
BU

All

1. (Amended) A composition useful in preparing melt spun textile fibers comprising a polyurethane polymer prepared from at least one diisocyanate monomer and at least two diol monomers, a first diol monomer having a number average molecular weight of about 1,000 to about 8,000 and a second diol monomer having a molecular weight of about 62 to about 118; said polyurethane having a number average molecular weight of about 200,000 and above, a tenacity of about 0.6 gm/denier and above, and an elongation of about 400% and above, wherein said first and second diol monomers are always reacted separately during preparation of the polyurethane polymer.

Cancel claim 2.

Cancel claim 3

Please amend claim 5 as follows:

Sys
BU

5. (Amended) A composition according to claim 1 wherein the at least one diisocyanate monomer is a member selected from the group consisting of aliphatic monomers having terminal isocyanate groups, aromatic monomers having terminal isocyanate groups, mixtures of said aliphatic and aromatic monomers, mixtures of isomers of an aliphatic monomer having terminal isocyanate groups

a12
cont

A12
concede

and mixture of isomers of an aromatic monomer having terminal isocyanate groups.

Please amend claims 7 and 8 as follow:

Sub
B1

7. (Amended) A composition according to claim 1 wherein the polyurethane polymer contains "hard" segments and "soft" segments, said segments arranged in an orderly fashion.
8. (Amended) A composition according to claim 1 wherein the polyurethane polymer contains urea functionality obtained by post-treatment of the polyurethane polymer with a diamine which is a member selected from the group consisting of ethylene diamine; hexamethylene diamine; 1, 4-diaminocyclohexane; P-phenylenediamine; 3, 3'-diaminodipropyl ether; diaminodibutylsulfide; and propylene diamine.

A13

Please amend claims 10-16 as follows:

Sub
B1

10. (Amended) A process of preparing a polyurethane polymer fiber precursor, the process comprising the steps of:
 - a) obtaining a polyol prepolymer which is a member selected from the group consisting of hydroxyl terminated polyester glycols, hydroxyl terminated polyether glycols, hydroxyl terminated polyether/polyester glycols, and mixtures thereof;
 - b) adding a first organic diisocyanate to the polyol prepolymer wherein the mole ratio of isocyanate group

A14
cm

to hydroxy group is about 2:1 to 1:1.1, to obtain a first mixture;

- c) reacting the first mixture of first organic diisocyanate and polyol prepolymer at a temperature of about 60°C to about 100°C and at atmospheric pressure for a time of about 20 minutes to about 100 minutes to obtain a “soft” polymer;
- d) obtaining a glycol having terminal hydroxyl groups;
- e) adding a second organic diisocyanate to the glycol wherein the mole ratio of isocyanate to hydroxyl is about 1:2 to about 1:1.2 to obtain a second mixture;
- f) reacting the second mixture of second organic diisocyanate and glycol at a temperature of about 50°C to about 70°C and at atmospheric pressure for a time of about 2 minutes to about 10 minutes to obtain a “hard” polymer;
- g) combining the “soft” polymer from (c) with the “hard” polymer from (f) in an extruder to obtain a combination of polymers wherein the mole ratio of isocyanate functionality to hydroxyl functionality in the combination is about 0.98:1 to about 1.2:1;
- h) reacting the combination of polymers in the extruder under suitable reaction conditions and at a temperature of

a 14
cm

about 125°C to about 260°C for a time of about 2 minutes to about 8 minutes and at atmospheric pressure to obtain a final polyurethane polymer; and

- j) extruding the final polyurethane polymer to obtain a solid product of polyurethane polymer fiber precursor.

11 (Amended) A process according to claim 10 further comprising the steps of;

- k) pelletizing the solid product of polyurethane polymer fiber precursor;
- l) melting the palletized solid product; and
- m) spinning the melted product to obtain a polyurethane polymer fiber;

12 (Amended) A polyurethane polymer fiber prepared according to the process of claim 11.

13 (Amended) A process according to claim 16 further comprising the steps of:

- (K') pelletizing the solid product of polyurethane polyurethane polymer fiber precursor;
- (l') melting the palletized solid product; and
- (m') spinning the melted product in the presence of a diamine vapor which diamine is a member selected from the group consisting of ethylene diamine; hexamethylene diamine; 1, 4-diaminocyclohexane;

all
cont

p-phenylenediamine; 3, 3'-diaminodipropyl ether;
diaminodibutylsulfide; and propylene diamine; to
obtain a polyurethane polymer fiber which contains
urea functionality.

- 14 (Amended) A polyurethane polymer fiber which contains
urea functionality prepared according to the process of claim 13.
- 15 (Amended) A process according to claim 10 further comprising the
step of:

- (K'') pelletizing the solid product of polyurethane
polymer fiber precursor;
- (l'') melting the pelletized solid product, and
- (m'') spinning the melted product into an aqueous
solution of diamine which diamine is a member
selected from the group consisting of ethylene
diamine; hexamethylenediamine; 1, 4-
diaminocyclohexane; p-phenylenediamine; 3, 3'-
diaminodipropyl ether, diaminodibutylsulfide; and
propylene diamine; to obtain a polyurethane
polymer fiber which contains urea functionality.

- 16 (Amended) A polyurethane polymer fiber which contains urea
functionality prepared according to the process of claim 15.

Please amend claims 20-26 as follows:

- 20 (Amended) A process for preparing a polyurethane polymer fiber

precursor, the process comprising the steps of:

- (a) obtaining a polyol prepolymer which is a member selected from the group consisting of hydroxyl terminated polyester glycols, hydroxyl terminated polyether glycols, hydroxyl terminated polyether/polyester glycols, and mixtures thereof;
- (b) adding a first organic diisocyanate to the polyol prepolymer wherein the mole ratio of isocyanate to hydroxyl is about 2:1 to about 1:1.1 to obtain a first mixture;
- (c) reacting the first mixture of first organic diisocyanate and polyol prepolymer at a temperature of about 60°C to about 100°C and at atmospheric pressure for a time of about 20 minutes to about 100 minutes to obtain a "soft" polymer;
- (d) obtaining a glycol having terminal hydroxyl groups;
- (e) obtaining a second organic diisocyanate;
- (f) combining the "soft" polymer with the glycol of step (d) and the second organic diisocyanate of step (e) in a reaction extruder to obtain a combination of "soft" polymer, glycol and diisocyanate, wherein the mole ratio of isocyanate group to hydroxyl group is adjusted to approach 1:1, with the proviso that gel formation is avoided;
- (g) reaction the combination of "soft" polymer, glycol and diisocyanate in the reaction extruder under suitable reaction

also

conditions and at a temperature of about 125°C to about 260°C for a time of about 2 minutes to about 8 minutes and at atmospheric pressure to obtain a final polyurethane polymer; and

(h) extruding the final polyurethane polymer to obtain a solid product of polyurethane polymer fiber precursor.

21. (Amended) A process according to claim 20 further comprising the steps of:

(j) palletizing the solid product of polyurethane polymer fiber precursor;

(k) melting the pelletized solid product; and

(l) spinning the melted product to obtain a polyurethane polymer fiber.

22. (Amended) A polyurethane polymer fiber prepared according to the process of claim 21.

23. (Amended) A process according to claim 20 further comprising the steps of:

(j') pelletizing the solid product of polyurethane polymer fiber precursor;

(k') melting the pelletized solid product; and

(l') spinning the melted product in the presence of a diamine which is a member selected from the group consisting of ethylene diamine; hexamethylene diamine; 1, 4-

Alt
alt

diaminocyclohexane; p-phenylenediamine; 3, 3'-
diaminopropyl ether; diaminodibutyl sulfide; and propylene
diamine; to obtain a polyurethane polymer fiber which
contains urea functionality.

24. (Amended) A polyurethane polymer fiber which contains urea
functionality prepared according to the process of claim 23.
25. (Amended) A process according to claim 20 further comprising the steps
of:

- (j'') pelletizing the solid product of polyurethane polymer fiber
precursor;
- (k'') melting the pelletized solid product; and
- (l'') spinning the melted product into an aqueous solution of a
diamine which is a member selected from the group
consisting of ethylene diamine; hexamethylene diamine; 1,
4-diaminocyclohexane; p-phenylenediamine; 3, 3'-
diaminopropyl ether; diaminodibutyl sulfide; and propylene
diamine; to obtain a polyurethane polymer fiber which
contains urea functionality.

26. (Amended) A polyurethane polymer fiber which contains urea
functionality prepared according to the process of claim 25.

Please amend claim 29 as follows:

29. (Amended) A process according to claim 20 wherein step (g) is conducted
in the presence of a catalyst.